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ORIGINAL COMMUNICATIONS.

A STUDY OF THE CATARRHAL CONDITIONS OF THE STOMACH, WITH ILLUSTRATIVE CASES.

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SECONDARY CATARRH.

IN obstructive cardiac disease, in cirrhosis of the liver, and in certain pulmonary affections (for example, chronic bronchitis and emphysema), a secondary catarrh of the gastric and intestinal mucous membranes is rarely absent, the lesion being due to blocking of the portal circulation, leading to over-filling of the gastro-intestinal capillary vessels.

Limiting attention to the stomach, we find that when the hyperæmia is moderate in degree, and of long standing, the mucous membrane becomes thick and firm, slate-gray or even brown in color, mammillated, and covered with a grayish, tough, adherent mucus. If, on the contrary, the congestion is recent and intense, the mucous membrane presents various shades of vivid redness, and occasionally patches of ecchymosis, it is œdematous and granular in appearance, and is covered with tenacious mucus. The latter—the subacute—form of secondary catarrh occurs very much less frequently than the chronic form. The following history, however, furnishes a very complete illustration of the symptoms and morbid appearances:

Case I.—Charles —, * æt. 44, a sailor, of temperate habits, was admitted to the medical ward of the Episcopal Hospital on September 26, 1879. He had been able to attend to his duties on shipboard until March, 1879, when he began to have paroxysms of palpitation and breathlessness, associated with severe epigastric pain and vomiting. After resting for three weeks, the abdominal symptoms disappeared, but palpitation and dyspnœa continued to be so readily excited by exertion that he was unable to resume work.

The attack for which he entered the hospital commenced in the same manner, on September 23. When admitted, he was very weak; his nose, lips, and nails were blue;

his conjunctivæ were slightly yellow, and his skin felt cool to the hand. The pulse counted 88, and was rather jerking in character. The cardiac dulness was increased; the apex-beat was indistinct, and was situated in the sixth interspace, on the left nipple-line; in the epigastrium there was a strong transmitted impulse. On auscultation, a double murmur could be distinguished at the apex, and a soft systolic murmur at the aortic cartilage. The respirations were 60 per minute, were attended by movements of the nostrils, and he had some cough, with a slight frothy expectoration. Over the lower posterior portions of both lungs fine mucous râles were heard; there was no impairment of the percussion-resonance.

The patient complained of great pain in the epigastrium, extending towards the back; his tongue was swollen and covered with a white fur; he had much thirst, very little appetite, and when food was taken it seemed to lie as a weight at the cardiac extremity of the stomach, and considerably augmented the pain. There was nausea without vomiting, and the bowels were moved daily. The epigastrium was distended, dull on percussion, and tender to the touch. The left lobe of the liver was displaced downward, occupying the whole of the epigastric region and the upper part of the umbilical region; the right lobe extended a short distance below the costal border anteriorly. The urine was normal.

Under absolute rest in bed, a carefully regulated diet, consisting of milk, meat-broths, eggs, and farinaceous preparations, with moderate doses of infusion of digitalis and of tartrate of iron and potassium, the symptoms steadily improved until October 11, the epigastric pain and nausea disappearing, the appetite returning, and the respiration falling to 24 a minute. From October 11 to 24 there were frequent paroxysms of palpitation, dyspnœa, pain, and nausea. During the next fortnight he had only occasional, trifling attacks of dyspnœa at night; he was often able to be out of bed for several hours at a time; the lividity of the face and nails passed away; the surface felt normal in temperature; the respiratory movements ranged from 24 to 26, and the pulse about 84. His tongue was clean, he ate moderately well, and there was no nausea or abdominal pain.

On November 6 the nausea and pain returned, and on the 7th he had relapsed into a worse condition than on admission, obstinate vomiting being added to the other symptoms. After this his tongue became heavily coated, he had a disagreeable taste in his mouth, complete anorexia, and an urgent desire for acidulated drinks. There was constant nausea, severe burning pain in the epigastrium, and the ingestion of food caused increased suffering, and was quickly followed

* History taken from the ward notes of Dr. H. D. Harvey, resident physician.

by vomiting, the material ejected consisting of food only slightly altered, and of tenacious, rust-colored mucus, somewhat resembling pneumonic sputa. The gastric tympanic percussion-note could be elicited over an unusually extended space. The bowels were moved daily, the stools being scanty, scybalous, and clay-colored. The respiratory movements were much increased in frequency, and the physical signs of œdema were present at the bases of both lungs. The pulse was feeble and irregular. He lost flesh rapidly; his face assumed an anxious expression; the cyanosis became deeper; his feet, legs, and genitals grew œdematous, and the urine albuminous. Attempts were made to relieve the gastric irritability by alkalies and dilute hydrocyanic acid, to supply nourishment by the rectum, and to support the heart by digitalis, but without success. Death occurred on the evening of November 13.

At the autopsy, besides very great cardiac enlargement and marked lesion of the mitral valve, the *stomach* was found to be dilated to nearly twice its normal size, the mucous membrane was thickened, granular, crimson in color, with many points of ecchymosis, and covered with a thick layer of adherent mucus. The mucous membrane of the intestines was also intensely congested. The liver weighed five pounds; it was engorged with blood, and the surface, especially near the anterior margin, was uneven, as if cirrhotic change had begun. The kidneys were simply congested.

The symptoms of chronic secondary catarrh are similar to those of the same type of primary or idiopathic catarrh, with certain modifications and additions depending upon the condition producing it. The treatment of either of the secondary forms, beyond the employment of palliatives to lessen gastric irritability, resolves itself into that of the causative lesion, whether this pertains to the heart, the lungs, or the liver.

PRIMARY CATARRH.

Idiopathic gastric catarrh, either in the acute or chronic form, occurs more commonly than the secondary variety. The secretion of the gastric juice is always accompanied by marked hyperæmia of the mucous membrane of the stomach, which in turn is followed by a flow of mucus and the detachment of a quantity of epithelial cells. In other words, in healthy digestion a series of alterations take place in the mucous coat of the stomach, which, occurring in another mucous membrane, as the nasal or bronchial, would be considered abnormal, and designated by the

term "catarrhal." Now, since the act of digestion is usually repeated three times daily, and extends over a considerable period, it is easy to understand the facility with which, in the presence of an irritant, the normal hyperæmia may pass into acute catarrh, how, if the irritation is persistent, the catarrh becomes chronic, and also why the catarrh, as it is simply an exaggeration of a normal process, subsides more readily than the same condition of other mucous membranes.

The pathological appearances in primary and secondary catarrh differ only in degree, the changes, as a rule, being most marked in the latter. An opportunity of observing the morbid conditions in either type of idiopathic catarrh is rare, and particularly so in the acute form, both on account of the almost uniformly favorable termination and because any ordinary amount of hyperæmia entirely disappears with death. In fact, though the changes characteristic of the chronic form are sometimes demonstrable on the post-mortem table, death having been produced by some incidental cause, those belonging to the acute form are mainly inferred from the study of the catarrhal state in visible mucous membranes, and from the experiments of physiologists. Clinically the acute and chronic forms present many points of contrast.

THE ACUTE FORM.

Acute catarrh of the stomach may follow exposure to cold and wet, but is usually caused by improper food or by intemperance in eating or drinking. In experimenting upon St. Martin, Dr. Beaumont found that whenever irritating food or immoderate quantities of stimulants were consumed the mucous membrane of the stomach became temporarily much congested and the secretion of the gastric juice greatly diminished, and that while these conditions lasted there was more or less general discomfort.

The catarrh produced by taking excessive quantities of food or by food of bad quality depends less upon the material itself than upon the irritating products of the decomposition taking place when it remains in the stomach imperfectly digested. On the contrary, catarrh resulting from the abuse of alcohol or condiments, and from swallowing very hot or cold substances, depends upon a direct action on the mucous membrane, augmented in the case of alcohol by an arrest

of the digestion and the subsequent fermentation of whatever food the viscus contains at the time of the debauch.

In a patient recently under my care the catarrh was produced by a cause which, although probably often observed under favorable circumstances, has been active in very few of the cases that have come to my notice. The clinical record runs as follows:

Case II.—Mary —, * æt. 17, a child's nurse, was admitted to the women's medical ward of the Episcopal Hospital on December 3, 1879. Nearly three weeks before, being at the time in perfect health, she left her home in Wales to come to America. When the steamer was one day out she became, as she expressed it, "fearfully sea-sick." During the rest of the passage, which lasted fourteen days, she vomited continuously, and was so ill that it was necessary to move her from the steerage into more comfortable quarters in the cabin.

When admitted to the hospital, forty-eight hours after landing, she complained of malaise and general prostration. Her face was flushed, her eyes were heavy, she had frontal headache and giddiness, and her skin felt hot to the hand. Her tongue was red and glazed; her mouth was dry; there was great thirst; anorexia; nausea and vomiting after the ingestion of food; the bowels acted daily. The abdomen was normal. The heart and lungs were healthy; the pulse was 100, and rather feeble; the respiratory movements were unaltered in frequency. The urine was passed freely, was turbid, had a specific gravity of 1.021, was acid in reaction, and non-albuminous.

She was put directly to bed; three fluid-ounces of milk, with one fluidounce of lime-water, were given, at intervals of two hours; ice was allowed in moderate quantities to relieve the thirst, and two fluidrachms of *mistura potassii citratis* were administered every three hours.

After commencing this treatment there was no more vomiting, and her condition rapidly improved. On December 5 she was able to take some farina with milk, and subsequently food was given at longer intervals, and was gradually increased by the addition of bread, meat-broth, and chicken, until, on the 9th, she was on full diet, taken at the ordinary meal hours. At this date the only remaining symptoms were poor appetite and slight weakness. The neutral mixture was stopped, and a prescription, each dose of which consisted of ten grains of pepsin and ten minims of dilute muriatic acid in syrup of lemon and water, was directed to be given after each meal. She was discharged, perfectly recovered, on December 15.

* History taken from the ward notes of Dr. T. H. Cathcart, resident physician.

In the next case sea-sickness intensified and prolonged a pre-existing acute catarrh of the stomach.

Case III.—Isaac —, † æt. 51, temperate, was admitted to the medical ward of the Episcopal Hospital on the evening of September 4, 1879. He stated that his health had always been fairly good, though he was subject to occasional attacks of gastric catarrh, or, in his own language, "biliousness." The illness for which he sought relief at the hospital began five days before, with abdominal pain, vomiting, and general prostration. Having an opportunity to officiate as cook on a steamer plying between Philadelphia and Boston, and thinking that a sea-voyage would benefit him, he accepted the position. During the passage he was extremely sea-sick, vomiting continuously, and eating little or nothing.

When admitted, only a few hours after reaching port, he was very weak, his skin and conjunctivæ were slightly yellow, his pulse was 60 per minute and very feeble, and there was considerable mental depression. His tongue was lightly coated, moist, and indented by the teeth; there was anorexia, thirst, and constant nausea, and his bowels had not been evacuated since the beginning of his sickness. The abdomen was natural in shape, there was some tenderness in the epigastrium, and palpation increased the sense of nausea. The urine was normal.

He was put to bed, equal quantities of milk and lime-water were ordered in small doses at short intervals, and five grains of calomel were administered.

On September 5, as there was still some nausea, though no vomiting, a mustard cataplasm was applied to the epigastrium, and five grains of bicarbonate of sodium were ordered four times daily. The action of the calomel was assisted by an enema, and several stools were obtained.

On September 7 the patient was in good spirits, and the gastric condition had improved so much that he was able to take the hospital "soft diet,"—milk, meat-broth, farina, eggs, and bread. On the 8th he asked for his discharge and returned home.

Acute catarrh is usually accompanied by pyrexia, as in Case II., and frequently by sallowness of the complexion, as in Case III., this symptom, sometimes amounting to a slight degree of jaundice, depending upon congestion of the liver. So far as the other features are concerned, these cases afford a very fair picture of the disease as ordinarily encountered, the tongue being more commonly covered with a white or yellowish fur than red and glazed, as in the nursemaid, and the bowels being

† History taken from the ward notes of Dr. H. D. Harvey, resident physician.

more commonly confined or irregular than evacuated daily.

A most essential point in the treatment is a proper regulation of the diet. The most uniformly applicable food is milk. Care must always be taken to secure milk of good quality, the urgency of the symptoms in each case being a guide both to the quantity and the frequency of administration. When there is considerable nausea and frequent vomiting, from two to three fluidounces of milk, with one fluidounce of lime-water, every two hours, will usually be retained without difficulty. Such a plan, supposing the feeding to be discontinued through the night (which, by the way, should always be done, unless otherwise demanded by excessive prostration, if there is a tendency to sleep), supplies about sixteen or twenty-four fluidounces of milk per diem. This is certainly a short allowance, but, independently of the rest afforded the stomach, the fact is unquestionable that a small amount of food retained furnishes more nourishment than an infinitely larger quantity vomited directly on ingestion. If the irritability is too great for the retention of these doses, the same combination of milk and lime-water must be given in diminishing amounts at correspondingly short intervals, until the proper measure, if it be only a teaspoonful, is reached. On the contrary, when the vomiting is less obstinate, or as the patient improves, the doses and intervals should be increased, and as opportunity offers the diet gradually extended, by the addition of farinaceous articles, broths, chicken, etc., until the ordinary food is resumed.

Very exceptionally, milk and lime-water cannot be retained. When this happens, it is best to abandon the milk diet altogether and substitute carefully-prepared beef-tea or chicken- or mutton-broth, entirely free from fat, in doses of two fluidounces every three hours. Beef-juice is also serviceable under these circumstances. I have never had occasion to use either whey or artificially-digested milk,* each of which is highly recommended in obstinate vomiting.

Thirst, which is often a distressing symp-

tom, is best relieved by the moderate use of ice, the ingestion of large draughts of water tending to prolong the vomiting.

Until the active symptoms have subsided, confinement to bed is necessary.

Having regulated the diet and enforced complete bodily rest, the patient is put far on the way to recovery; but still much may be done by medication to shorten the illness. At the beginning of the attack, if the bowels are obstinately confined, and particularly if the skin or conjunctivæ are at all yellow, I direct in the evening three grains of "blue mass" or five grains of calomel, to be followed in the morning by a Seidlitz powder; when the constipation is moderate, the lower bowel is simply evacuated by an enema. At the same time, either bicarbonate of sodium or citrate of potassium in the form of *mistura potassii citratis*, or preferably the "effervescent draught," is prescribed.

The bicarbonate of sodium, employed most frequently, is administered in ten-grain doses, three or four times daily, mixed with a tablespoonful of milk or compressed into a pill. The citrate of potassium is usually reserved for cases where considerable fever is associated with the sick stomach. The "effervescent draught" is much more agreeable and efficient than the "neutral mixture:" it is ordered in two solutions,—one composed of two drachms of citric acid to four fluidounces of water, the other of one drachm of bicarbonate of potassium to three fluidounces of water; half a fluidounce of each are put together and taken during effervescence, the dose being repeated every two or three hours. This mixture is yet more pleasant if equal quantities of lemon-juice and water are substituted for the citric acid solution.

In addition to these medicines, sinapisms or linseed poultices are applied to the epigastrium.

Often, upon the decline of the acute symptoms, a condition of general debility and enfeebled digestion supervenes. The alkalies are then discontinued, and ten grains of pepsin, with fifteen minims of dilute muriatic acid, given, well diluted, thrice daily after eating. Should the bowels be constipated during convalescence, a pill, composed of *pulv. ipecacuanhæ gr. j, cinchonidiæ sulph. gr. ij, and pil. aloës et myrrhæ gr. ij*, is ordered after dinner. This pill, a modification of an

* "To each ounce of cow's milk add five grains of pure pepsin and four drops of dilute hydrochloric acid. Digest this in a water-bath at a temperature of 100° F. After a time the mixture becomes clear. Then neutralize the acid with bicarbonate of soda, and the milk is ready for use."—Eustace Smith, *Wasting Diseases of Children*, 3d edition, p. 43.

old formula, possesses the great advantage of retaining its powers on repetition; sometimes, indeed, it has been necessary to reduce the dose gradually in order to prevent overaction.

(To be continued.)

RESEARCHES ON HEARING THROUGH THE MEDIUM OF THE TEETH AND CRANIAL BONES.

BY CHARLES HERMON THOMAS, M.D.

*Read before the Philadelphia County Medical Society,
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IN presenting the results of my investigations and experiments on the means and methods of transmitting vocal sounds to the internal ear by the way of the teeth and cranial bones, I shall but briefly describe the two instruments which have been exhibited here to-night, and which have received so large a measure of public attention during the past few weeks.

It will be seen that the principles upon which their action is founded are not new to us; indeed, are very generally known; but the remarkable results obtained by the application of these principles in the audiphone and dentaphone* have fallen as a surprise alike upon the general public and the medical profession. The audiphone† resembles in form a Japanese fan, and is composed of vulcanite. When in use it is slightly bowed by cords connecting the handle and the upper edge, which edge is to be held in contact with the eye-teeth of the hearer, the convex surface being turned towards the source of sound. The dentaphone‡ is of the same model as a telephonic mouth-piece, its diaphragm being perforated at the centre for the attachment of a string, which serves to connect it with a small bit-piece, the latter to be held between the teeth of the hearer, who with one hand extends the mouth-piece with its opening towards and close to the face of the speaker, keeping the string in a state of tension.

Hearing through the medium of the

teeth and cranial bones is certainly not a novelty; on the contrary, the knowledge that sound may be thus conveyed has long been made use of for a variety of practical purposes. The application of the tuning-fork by aural surgeons in diagnosis is an instance familiar to all present. A patient of mine, whose hearing was much impaired in early life by scarlatina, informs me that in order to learn if his watch was running he has for many years been in the habit of placing it between his teeth, and of testing his clock also by applying his teeth to the mantel on which it stands, being otherwise unable to hear either of them. The same patient in his youth was accustomed to listen for the approach of a railroad train by placing his teeth upon the track; in this manner he was able to hear it some time before those who were about him, and who had normal hearing. A deaf friend enjoys music by placing one end of his cane against the piano and the other against his teeth. Another patient, an experienced engineer in charge of a stationary engine, has always practised listening to the sounds of its valves by placing one end of a stick upon the part nearest them and the other against his teeth, meanwhile stopping his ears with his thumbs, he having been taught this method as a part of his trade many years ago.

It has also been known that sound-waves produced in the air are communicated to contiguous bodies, causing them to vibrate in unison, though with varying degrees of intensity according to the density, elasticity, and form of such bodies. Furthermore, it was well known that vocal sounds were no exception to this rule, and that these, as well as others, could be transmitted, under suitable conditions, as longitudinal vibrations through long distances, as witness the familiar examples of the so-called "lovers' telegraph" and boys talking through a fence-rail. All this being known, it appears that a happy accident was all that was required to show that the complex vibrations of articulate speech as reproduced in solids might be conveyed through the teeth and cranial bones, and thus be rendered audible, as were the simpler sounds before mentioned; and, at the same time, to furnish a suitable means to accomplish the object.§

* The names "Audiphone" and "Dentaphone" being claimed as trade-marks, and being otherwise objectionable, I propose the name *Osteophone* as a general term to be used for all appliances—including the above—intended to aid hearing by conveying articulate sounds to the ears through the medium of the cranial bones; the teeth not being essential factors.

† Patented September 23, 1879.

‡ Patented November 18, 1879.

§ Miss Van B—n, a lady of high standing in a neighboring State, writes me as follows: "... Seven years ago I was

The chief significance of this discovery is that through the use of proper appliances, such as the audiphone and dentaphone, useful hearing may be restored to many persons otherwise deaf.

My knowledge of these instruments and the results claimed for them led me to undertake a series of observations and experiments with a view (1) to demonstrate the principles upon which their action is founded; (2) to determine the practical value and range of use of these instruments; (3) to devise other and more convenient and less conspicuous forms of mechanism which might be substituted for them; (4) to improve the quality and increase the volume of the sound conveyed; (5) to discover new physiological and pathological facts relating to the functions of vocalization and hearing; and (6) to throw open to professional, and so to public, use the results gained, thus supplying data for further investigation and invention freed as far as possible from the restrictions which patents impose.

These researches involved the examination and oft-repeated re-examination of many deaf and partially deaf persons, the construction of new mechanism, and the testing, in different forms and under varied conditions, of a great variety of materials. In all this labor I had the valuable assistance of Dr. Edward C. Kirk, who will aid me in the repetition of several experiments* before you to-night.

Before going farther, let me say that, though a number of novel results will here be shown, and some of them not without practical value, it is my opinion that osteophony as a subject worthy of study is not nearly exhausted, and that the future will develop other and far more useful applications of the method than have yet been reached.

using a Japanese fan, and, happening to put it within my teeth, found, to my surprise, that the conversation of those around me was audible. Almost fearing it was not so, I made several experiments, and found it to be a fact. Any one that has been deprived of the sense of hearing may imagine my delight and thankfulness to a kind Providence. I use it constantly, and find it a great help. . . .

* There were present two patients, upon whom the various appliances herein described were tested in the presence of the Society. The following experiment was also shown. A string one hundred feet long was stretched from the face of a guitar placed in the auditorium, there to serve as a sounding-box, to a tense diaphragm located in a distant room, where an assistant was posted, whose voice, as in the repetition of the alphabet, was made distinctly audible to every one in the hall through the volume of resonance developed in the guitar. On removing the guitar and placing the end of the string in the grasp of the teeth of a deaf lady, and the same sounds being repeated by the assistant, she was able to hear and instantly to duplicate them, though they could now be heard by no one else in the audience.

The conclusions arrived at, briefly stated, are as follows:

I. As has been indicated, both the audiphone and dentaphone depend for their action upon the principle of acoustics that solids—in this case in the form of thin plates—vibrate in unison with the sound-waves produced in the air near them. In these instruments the vibrations are of sufficient force to be audible when conveyed to the internal ear through the medium of the teeth and cranial bones, independently of the ordinary channel of hearing,—the transmission being direct in the audiphone and indirect through the conducting string in the dentaphone.

Though, within certain limits, sound-vibrations in solids are readily conducted in this manner,—becoming audible in all cases where the internal ear is intact,—the relatively slight vibrations produced in dense substances by sound-waves propagated in the air near them are not recognizable as sound, except where the normal exercise of the function of hearing is suspended by disease of the middle ear or obstruction of the external portion of that organ. Normal hearing so far exceeds that obtained by the means in question as to render the comparatively small addition made through them inappreciable and as nothing in the presence of the greater sensation.

The size of the sound-receiving sheet governs the distance at which the instruments will act, and the dimensions must be increased in proportion as the source of sound is removed. The audiphone is, therefore, much better adapted than the dentaphone for use at a distance, the latter being only suited to transmit sounds emitted near its mouth-piece. The bowing strings of the former are not at all necessary to its perfect working, as its arched form may very conveniently be given to it by the hand, pressing its upper edge against the teeth. Not tension, but the arched form is the condition essential to its proper action, for this form is that best adapted to impart the impact of sound-waves against its convexity, which is then expended in the form of a thrust of the arch against the teeth, these forming one of its abutments.

II. That these instruments are of great value in a considerable proportion of cases of deafness there is no reason to doubt, but there is no just ground for the public

belief that with their aid the deaf are enabled to hear as well as those with ordinary hearing. On the contrary, they supply, I am convinced, but a very small fraction of normal hearing,—much *less* than a *hundredth part*. Neither instrument adds in the slightest perceptible degree to the hearing of those with perfect ears, except when the latter are securely stopped. I have repeatedly tested both instruments with this question in view, choosing as subjects those receiving from them decided benefit in listening to conversation and otherwise, and have as yet found no case in which a loud-ticking watch was heard when held close to the centre of the sound-receiver. Furthermore, when the watch was placed upon a large Koenig resonance-box, thus multiplying the sound many times, and this placed so near to the diaphragm as barely to escape contact with it, still no sound was heard. Considering the law of acoustics, that the intensity of sound is inversely as the square of the distance of the sonorous body from the point at which it is heard, and taking into account the distance at which the sound described should be heard by the normal ear, my estimate of the strength, or rather the weakness, of the sound conveyed by these instruments will be seen to be justified. It is important that this be taken into account, for large numbers of the partially deaf suffer such disappointment at their failure to hear in full that they undervalue or altogether disregard a positive gain of many times their usual hearing. The difference between normal hearing and that derived through these means is hardly less marked than that between sunlight and candle-light; nevertheless, this very small fraction is of priceless value in many cases, for to those who practically hear nothing without them, who sit in acoustic darkness, the gain is all the difference between nothing and something,—scarcely less than infinity.

In view of certain strongly expressed statements which have obtained currency, the results to be derived from the use of the audiphone in deaf-muteism are likely to prove very disappointing. Repeated tests show that those who are able to hear with the aid of the audiphone hear *their own voices* perfectly without it; while those who are unable to hear their own voices without it can hear no other voice with it. Cases in which the dumb are

so by reason of middle- or external-ear deafness, while yet retaining in the internal ear the capability of hearing, must be extremely rare, but only in so altogether exceptional a case could it be of use, enabling the subject to hear sounds which might afterwards be imitated.

This class of instruments should be in the hands and under the special direction of physicians, among other reasons, because caution is necessary to prevent their being relied on to the neglect of proper examination and treatment of the ears. Probably the most striking results to be found from their use would be in obstruction of the external ear by impacted cerumen; but manifestly it would be malpractice to make use of such means instead of effecting the removal of the offending material.

Practice is required in using either instrument, especially in cases where hearing has long been abolished, and the suggestion which has been made, to read aloud to the patient while he follows the printed words with the eyes, is a good one. Besides this, practice with the watch or tuning-fork against the teeth, thus directing the attention to receiving the sound through the new channel, will prove valuable as an educator of the disused sense. The rod osteophone—hereafter to be described—has a special value for the same purpose.

It is perhaps too soon to decide the relative merits of the speaking-trumpet and these appliances, but enough is known to render it probable that the osteophone will either substitute or supplement the former in many instances: certainly it is far more agreeable for most persons to talk to the latter.

III. The audiphone is open to the objection that during its use it obscures to a certain extent the features of the user, and the dentaphone is held more or less in the line of vision. Both instruments are open to the still more serious objection that they each require the constant service of at least one hand during their use. With neither can the user hear when his hands are engaged in other employment.

To remedy these defects I have made the following device. A large receiving diaphragm is attached, in an arched form, to a rod of wood or metal. The rod is bent in the form of a pipe-stem, one end of which is to be held firmly between the

teeth, as a pipe is held (Fig. 1), thus enabling the user to listen to sounds about him, and, at the same time, leaving his hands free for other occupation. The diaphragm being below and away from the face, it is comparatively inconspicuous.

FIG. 1.



Ornamental fans of almost all sorts may be utilized for occasional use, and, when coated with shellac and tipped with ivory or hard rubber, may be made to answer fairly well, though they will prove unsatisfactory for ordinary uses. Many other forms of instruments have been found to answer the purpose of conveying vocal vibrations: thus, a piece of yellow pine wood, turned out into trumpet-shape, about two feet long, with an expanded end three inches in diameter, may be used for conversation, the small end being applied to the teeth of the deaf person and the opposite end held close to the mouth of the speaker. In this manner a very good volume of sound is conveyed. A tense string connecting the upper teeth of the two about to converse also answers the same purpose.

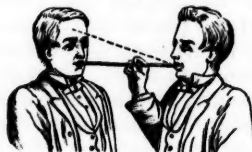
IV. The tone of the voice differs materially when conveyed by different substances. Where these are lacking in resonance (as in celluloid and binders' board), flatness is the result, while others which are over-resonant or over-persistent in their vibrations (as vulcanite and ferro-type metal) yield ringing or confused sounds. The quality needed is that possessed by good sounding-boards, of instantly responding to contiguous sounds and maintaining them during their continuance, and also of instantly ceasing to vibrate upon the cessation of the causative sound. This right sort of elasticity of resonance, that capable of reproducing human voice-tones in their purity, is possessed to a high degree by fullers' board (or press-board), which, when treated with shellac varnish and thoroughly dried, has proved not only far better than other paper or cardboards,*

* Between the date of the delivery of this lecture (December 17, 1879) and its present publication in the order of the Society's proceedings the discovery of this application of cardboard has been claimed by others. I had previously discovered and demonstrated at this meeting the adaptability of this material, together with other varieties of paper, and especially of that known as fullers' board, for diaphragms of

but is also a great improvement upon the sheet metals or hard rubber; lacking the "reverberations" and "roaring sounds" of the latter, as they are described by different patients upon whom they have been tested. Besides, owing to its greater elasticity, it is less destructible than either these or the thin sheets of wood which otherwise answered the purpose, while its cost is but trivial.

The simplest osteophone, one that excels by many times in the volume of sound transmitted either audiphone or dentaphone, consists simply of a small rod of hard wood,—a convenient size being about two feet long and a quarter of an inch thick,—one end of which is placed (Fig. 2) against

FIG. 2.



the teeth of the speaker, the other resting against or between the teeth of the person hard of hearing. If the speaker now articulates in a natural tone of voice, the vocal vibrations will be transmitted in great volume through the teeth and thence to the ears of the deaf person.†

V. A physiological fact, not duly recognized or appreciated hitherto, so far as I am aware, is that sensible vibrations, produced by and corresponding to those of the voice, are propagated in the hard palate and base of the skull of persons speaking in ordinary tones. These vibrations are found to be transmitted throughout the skull with varying degrees of intensity, according to the point of observation chosen. In some localities—as the forehead, the front teeth of the upper jaw, and the top of the head—which are specially vibratory, these are so powerful as to be readily felt during the act of speech by the hand

osteophones. This was four weeks previous to the announcement, through the Associated Press of January 13, that the discovery had been made at Geneva, and antedates any other like publication in America.

† Later observations show that it will also convey the voice distinctly when placed against the forehead or other portions of the skull of the hearer. It will also convey perfectly audible speech from the skull of one to that of the other, or in its absence such sounds may be conveyed by simply bringing the heads themselves in contact. Again, instead of the speaker holding it against his teeth, he may place it against the upper part of his chest, when, upon using his voice, the sound will be conveyed as before; of course, independently of the teeth of either person.

grasping a rod—a common lead-pencil will answer—one end of which is pressed against the part. They may also be evidenced as articulate sounds, and distinctly heard as such through the use of the rod-osteophone, for, as has been observed, by its means the volume of sound consciously received is a perceptible addition to ordinary hearing. The existence of such vibrations accounts for the further fact, before mentioned and which I have taken much pains to verify, that in certain cases of extreme deafness the patient hears his own voice with the utmost distinctness, even though speaking in low tones, when like sounds produced in his very ears would be totally inaudible. It seems evident, then, that auto-audition for deaf and well alike includes among its leading factors the bone-vibrations spoken of; and the topographical relations of the larynx and the vault of the pharynx to that portion of the temporal bone which includes the internal ear supply good *a priori* grounds, if any such were needed, for reaching the same conclusion.

SOME ACCOUNT OF THE SANDWICH ISLANDS, CONSIDERED AS A SANITARIUM.

BY C. A. SIEGFRIED, M.D.

DURING the third voyage of Cook, the celebrated English navigator, in 1778, he came upon the group of islands in the Pacific Ocean now known as the Hawaiian Archipelago. They lie between latitude $18^{\circ} 52'$ and $22^{\circ} 15'$ north, and between longitude $154^{\circ} 42'$ and $160^{\circ} 33'$ west, stretching in a general west-northwest and east-southeast direction, about three hundred and forty miles. Within that distance they consist of eight large islands, and four islets which are scarcely more than barren rocks; the entire group having an area of six thousand seven hundred and ninety square miles, and at present containing a population of about fifty-eight thousand,—including the foreigners,—Oahu and Hawaii having by far the greater number. In Cook's time the population, as estimated by himself, was upwards of four hundred thousand.

They continued in the same state until Vancouver,—who may be styled their first Christian missionary,—on his voyage of discovery, in 1790–95, stopped here and gave

them cattle and sheep from California. At about the same time all of the islands were brought under domination by the famous Kamehameha, who began by conquering Hawaii,—his native island,—establishing himself eventually on Oahu, the most populous and fertile island of the group at that time. Kamehameha was noted for his strength of character, military skill, and bravery in battle; was of a large physique, and regular and not unhandsome features,—judging by a portrait taken of him during life by a French priest. He reigned as king till his death, in 1819. The dynasty became extinct in 1872. Kalakaua is the present sovereign, who visited the United States a few years ago.

They were Christianized and forsook their idols and the peculiar religious rite of tabu in 1820. In 1840 their political affairs were arranged by a declaration of rights and a form of constitution modelled somewhat upon that of Great Britain, and their independence was acknowledged by the principal nations. Here is presented the strange spectacle of a race of human beings emerging from a phenomenal state of barbarism and sensuality, from a religion of bloody sacrifices, to the adoption of a civilized form of government and the Christian religion within the short space of thirty years.

The islands are essentially volcanic, but coral is found interstratified with lava at great elevations, so that upheavals also must have taken some part in their formation. The mountains consist of a series of volcanoes,—active and extinct,—the peaks in many cases forming quite perfect basins, more or less strewn with decomposing lava, and covered with vegetation. The great volcanoes of Hawaii—the largest island—are rarely inactive, and contain the largest craters known; their height varies from fifteen hundred to fourteen thousand feet. The topography in the vicinity of the volcanoes is liable to great and sudden changes, as happened in 1801 at the northern extremity of Hawaii, when the volcano of Hualalai in eruption extended the coast-line in a westerly direction, filling up a large bay, and forming a headland running four miles seaward. At various times the entire face of the land contiguous to the volcanoes has been changed, valleys filled up and fertile plains overflowed. Mauna Loa, “the great mountain,” has a crater nine miles in circumference; Mauna Haleakala, “the

house of the sun," an extinct crater, is twelve miles, linear measure of its rim.

Since the discovery of the islands, one hundred years ago, the natives have rapidly diminished in numbers, so that they scarcely number forty-five thousand, according to the census of 1878. The causes of this remarkable decrease have been frequent wars among themselves, the introduction of syphilis and the exanthemata, and the general demoralization consequent upon a clashing of our civilization with their own simple habits of life and system of economy. They cannot comprehend the necessity of continuous human exertion, manual or mental, complex laws of society, and that eternal vigilance throughout the every-day affairs of life so essential to success; the fashion of locking up and securing houses came with the civilized foreigner.

The average Sandwich Islander is strong and well made, and is rather above the average height of Europeans; the nobles are physically superior and fairer; the skin of those much exposed is dark, olive-brown; the face is white, eyes bright and black, and the nose is full at the nostrils, without being flat. The hair is black and wavy, with no approach to woolliness. They are cheerful and fond of amusements, and are noted for their courtesy and hospitality.

The northeast trade-winds prevail for nine months of the year, depositing fertilizing showers on the northern and eastern slopes of the islands. The rainy season begins about the first of February and ends in April; at this time the trades are sometimes interrupted by northwest and southwest winds of short duration. The greatest heat is in July, the greatest cold in January. Near the sea the thermometer never rises above 86° nor falls to less than 60° F., and the annual range is 12°. Honolulu is under the isothermal line of 77° F. But nowhere with the same extent of coast-line and surface are the local climates so various: by ascending the higher lands any temperature desired may be obtained, as on the table-land of Hawaii a fire is comfortable, the average temperature being 64°, with a maximum range of 32°. The rainfall varies in the different islands, being probably greatest in Hawaii.

Honolulu, the chief city and seat of government, is on the southern and leeward side of Oahu, situated on a gentle slope and plain, at the base of the mountain-chain to the edge of the harbor. The population

consists of nine thousand three hundred natives, thirteen hundred half-castes, thirteen hundred Chinese, with Americans, British, Portuguese, Germans, and French, named in the order of numerical importance. Tropical foliage is common throughout the streets and surrounding residences, while cleanliness, order, and plenty of room abound. In the three months of July, August, and September, from accurate tables of temperature taken twenty-five feet above the sea-level at 7 A.M., 3 P.M., and 10 P.M., the highest temperature observed was 80°, the lowest 70°, the extreme variation being 10°, and the average variation 5°. The northeast trades blow two hundred and seventy-two days of the year, with usually calm nights; on the remaining days the south wind takes its place or the atmosphere is calm. The force of the wind seldom or never exceeds a moderate breeze, and a gale of wind is almost unknown. When the trades strike the crests of the mountains behind the town, moisture is precipitated, and the level to which the rainfall descends is plainly marked by the brown and green color of the vegetation on their sides. Comparatively little rain falls at Honolulu, or within some miles thereof, during nine months of the year.

Winter, or the rainy season, lasts from the end of October to the end of December, a period of two months. During that time a considerable amount of rain falls, if measured by inches,—in November, 6.05, December, 11.96 inches,—but as a great quantity falls in a short time it rapidly finds its way to the sea, owing to the nature of the subsoil and the physical conditions of the surface. It seldom rains more than forty-eight hours at a time. When raining and the sun is obscured, the thermometer stands at 70° and 72°, and the atmosphere is moist and warm; it is never cold with rain. The average monthly temperature from October to March is as follows:

	Sunrise.	3 P.M.
October	72°	84°
November	71°	81°
December	71°	81°
January	68°	81°
February	67°	80°
March	69°	80°

During the early morning, when the air is calm and evaporation active, the thermometer will sometimes fall to 60°; only once during the past five years has it fallen

as low as 56° F. The humidity varies from .69 in July to .87 in January, the mean of the year being .78. Electrical disturbance is very rare, and consequently ozone is nearly or quite absent.

From the above it will be seen that these islands, and more particularly Honolulu, possess a very equable climate, one well adapted to patients suffering with diseases of the lungs and circulation, or a tendency thereto, or to the chronic invalid in need of change. One can wholly live in the open air, and without fear of sudden changes, so common to Mediterranean health-resorts. Doors and windows need not be closed for fear of harsh winds at any time in the winter months, and the cooling trade-wind prevents undue relaxation during the summer months. A walk or drive is possible at any season of the year, and the use of extra wraps is unnecessary. Should a cooler climate than that of Honolulu be desired, an invalid will find it in the neighboring islands, where any temperature may be obtained from 80° to 20° F., the most desirable being that of the plains of Maui and Hawaii, which averages about 10° below that of Honolulu; this temperature is attained at fifteen hundred to two thousand feet above the sea-level.

Horses are abundant, and driving or riding can be accomplished at a moderate cost. The roads in the vicinity of Honolulu are excellent. Surf-bathing and swimming in the sea can be practised here as nowhere else, nature being lavish in this respect, and beaches are usually well protected, by outlying coral reefs, from heavy breakers and undertow. The temperature of the water is such that bathers are not driven out by uncomfortable or dangerous feeling of chill or cold, and the most delicate may venture in. In the way of other amusements there are fishing, hunting, excursions to the neighboring islands and the great volcanoes, and an agreeable, cosmopolitan society noted for its hospitality. Royalty itself is not inaccessible on occasions. In the way of botany there is a most inviting field, as there are over a hundred species of ferns known to exist; the castor-oil plant is sometimes seen with a stem five and six inches in diameter, spreading out like a tree, with the lower branches several feet from the ground. There are likewise a theatre, the Royal Hawaiian band of music,—a fine organization,—some lovely squares, and a

roomy, comfortable hotel. The fruits consist of oranges, bananas, pine-apples, limes, guavas, grapes, and the coarser ones common to the tropics. California sends fruits and provisions in addition, so that the menu is quite ample; though the beef seems inferior.

In view of the fact that it is but seven days from San Francisco by mail-steamer,—the distance being 2100 miles,—these islands merit more attention from Americans in search of an agreeable health-resort, and it is surprising to find them so neglected in this respect. There is no malaria to speak of, or other local injurious influence of any description—so far as known to me—that any invalid need fear to encounter. The exanthematous diseases—measles and smallpox—have in times past raged with fearful mortality among the natives, but in recent years even these diseases have become divested of unusual severity and are of rare occurrence. Leprosy is extant, but the government confines these cases, or segregates them, on an island of the group, named Molokai, whereon there are now some seven hundred lepers, forming a lawful and well-ordered community, not without many of the usual comforts and luxuries. Upon recognition of the disease lepers are at once removed, and cannot hope to return, social station being without influence, communication going on, however, through the officials, and the relatives of those afflicted can attend to their creature comforts, and in some instances even visit them. I am not aware of any peculiarities of medical treatment, nor have the medical reports to the state, if any such exist, been accessible to me. The effect of the system of segregation is apparent in a marked decrease of cases sent to Molokai, so that at a not remote time the disease will be eradicated from these islands. The disease has been known to exist here from very early times, though it is asserted that the Chinese brought it with them, and others speak of it as an outcome of syphilis, brought by the whalers, combined with degradation of tissues by reason of diet and habit. It has been observed that greater virulence, or a lower type of disease, has usually followed contact of the white and darker-skinned races, and at the latter's cost. There is much theorizing on this subject by members of the profession here directly concerned, and some cases are mentioned. So far as observed, there appears to be no es-

sential difference in the disease here and as I have seen it in other countries.

Honolulu contains a well-ordered hospital of moderate extent, beautifully situated amidst tropical plants and groves on rising ground in rear of the city, and possessing advantages in its service and arrangements; a tax on incoming passengers is its main support. The city has a full quota of physicians. I should have stated earlier that two dollars and fifty cents per day is the price of the best living the hotel affords. Cane-sugar is the main production of the islands, and the yield is enormous,—said to be without comparison elsewhere.

In conclusion, it may not be uninteresting to state that the Hawaiian kingdom is one of the three nations whose exports exceed their imports.

October 1, 1879.

TRANSLATIONS.

GEISSOSPERMUM VELLOSI (from Chernoviz's *Formulario* and *Estudo sobre Fibras*, by Professor Torres Homem).—This tree, a native of Brazil, is known, in the different localities where it grows, by the names of *Pão Pereira*, *Pão forquilha*, *Pão de pente*, *Camará de bilro*, *Camará do mato*, *Canudo amargoso*, *Pinguaciba*. It is found in the mountains of Tijuca, Estrella, and Gericino, in the province of Rio de Janeiro, and also in the provinces of Bahia, Minas Geraes, and Espirito Santo. Dr. Freire Allemão describes it as follows:

"A very large tree, the bark of which is very thick, the liber being yellowish, and having a bitter taste, free from astringency. Its crooked branches are very bushy. The leaves are of an oval, lanceolated form, measuring two to three inches in length, by one to one and a half in width. The flowers are small, gray in color, and odorless. The fruits, few in number, are oval in shape, covered, while green, by a grayish, hair-like substance; they become yellow when ripe. The seeds are lenticular, roundish, and oblong in form, and found in rows of four or five in each, covered by a fibrous pulp."

The portion used in medicine is the bark only. It occurs in commerce in the form of long strips, made up of thin, adherent laminæ, of a yellowish color and bitter taste. In the year 1838 E. C. dos

Santos, a pharmacist in Rio de Janeiro, obtained from this bark an alkaloid believed to be its active principle, which was called *Pereirina*.

Later analyses, made by Dr. E. C. dos Santos, son of the pharmacist, and Professor of Pharmacy in the Academy of Medicine of Rio de Janeiro, and also by the German chemists Pfaff and Behrend Goos, gave, more or less, the following result:

An alkaloid (*pereirina*) was obtained in the form of a grayish-yellow powder (no crystals), insoluble in water, but readily soluble in alcohol, ether, and the acids; a bitter, resinous extractive, soluble in alcohol, insoluble in water or ether, a small quantity of starch, and a vegetable acid, in combination with the alkaloid, were also found. From the ashes were obtained potash, calcium, magnesium, oxide of iron and of copper, silicon, and sulphuric, muriatic, phosphoric, and carbonic acids.

The use of the bark of *Pão Pereira* in the treatment of malarial fevers has given, in Brazil, a very satisfactory result. Dr. Torres Homem, Professor of Clinical Medicine in the Academy of Rio de Janeiro, says in his book "*Estudo clinico sobre as Fibras do Rio de Janeiro*," "There is not a practitioner in Brazil who has not had some good result from the use of this bark in the treatment of intermittent fevers." "I had under my care," says the same professor, "a lady who lived for six years in an extremely malarial place, suffering from intermittent fever (quartan), to whom the salts of quinia did no good, and she was cured by the use of a bath every day in the decoction of this bark and the internal use of twelve grains a day of the valerianate of *pereirina* given in two doses."

Dr. E. C. dos Santos tells of twenty-one cases of intermittent fever cured as above mentioned.—MOYSÉS MARCONDES.

INFLUENCE OF AGE ON THE RESULT OF AMPUTATIONS.—The prognosis of operations performed on persons of advanced age has always been regarded as comparatively unfavorable. The leanness, density, and dryness of the subcutaneous connective tissue predisposes, it has been said, to phlegmon, while the inactive circulation favors gangrene of flaps. The greater "vulnerability" of old persons has also been brought forward as a contra-indication to operations. The introduction of the

antiseptic method has, however, according to Dr. Max Oberst (*Cbl. f. Chir.*, No. 2, 1880), enlightened surgeons upon this subject, and has proved the error of the former theories. It has further shown that the age of the patient is without influence upon the course and termination of the amputation, provided only that two accidents are guarded against,—septic processes and excessive loss of blood. The power of the aged to resist these accidents is much smaller than that of the young. Lister's antiseptic process and Esmarch's bandage are the two agents in preventing mortality. Oberst gives tables of mortality in support of his view, as follows. Of 220 cases of amputation occurring in the surgical clinic at Halle, 9 (*i.e.*, 4.1 per cent.) terminated fatally. Among these were 48 patients over fifty years of age, of whom 2 (*i.e.*, 4.17 per cent.) died. Thus it appears that, *quoad vitam*, the result of the amputation was not influenced by age. Of these 48 older patients, 30 were between fifty-one and sixty, 13 between sixty-one and seventy, 4 between seventy-one and eighty; one, a case of amputation through the thigh, which recovered, was eighty-four years old. In one of the fatal cases (amputation of the leg for senile gangrene, the patient being seventy-four years old) death occurred from tetanus. In a second case death occurred as a result of drinking habits, the patient never rallying from the effects of the anæsthetic. The course of the wounds was always without reaction; neither phlegmonous processes, bone supuration, nor phlebitis was observed. In half the cases union by first intention took place.

LIGATURE OF THE MIDDLE MENINGEAL ARTERY IN FRACTURES OF THE CRANIUM.

—Apropos of a successful case by Professor Hueter, Marchant (*La France Méd.*, Nos. 1 and 2, 1880) makes certain observations reaching the following conclusions:

Rupture of the middle meningeal artery in direct fractures of the lateral portions of the cranium, with wounds, presents different aspects in the young from those observed in the old. In children, on account of the more intimate adherence of the dura mater to the bone, the blood tends only slightly to spread in the interior of the skull. The effusion is rather extracranial, and may be met by ligature of the middle meningeal artery,—an op-

eration rendered comparatively easy by its position and by the fact that it has usually been cut more or less sharply by a splinter of bone. In adults the opposite condition exists, the dura mater is separated over a greater or less area by the effusion, which is rather intra- than extracranial, external hemorrhage being exceptional. If, suspecting intracranial hemorrhage, on account of the symptoms of pressure or the appearance of external hemorrhage, the surgeon is inclined to intervene, he is met with almost insuperable obstacles to the ligation of the middle meningeal artery. These are connected with the volume of the clot to be removed, the position of the artery, four or five centimetres in from the surface, the difficulty of finding the exact point of the wound in the artery, and, finally, of applying hæmostatics in this position.

TETANUS — NERVE-STRETCHING — TEMPORARY RELIEF — DEATH.—Klin and Knie (*Cbl. f. Chir.*, No. 2, 1880; from *S. Petersb. Med. Wochens.*) give the case of a patient suffering from complicated luxation of the terminal phalanx of the right thumb, in whom tetanus and opisthotonos appeared on the twelfth day. The brachial plexus was exposed in the neck after Vogt's method, and the nerves were stretched centrally and peripherally. The contraction of the fingers and hand remained unaffected, but the tetanus and opisthotonos ceased for three days, returning, however, at the end of that time. The case terminated fatally, in spite of the use of curarine, chloral, and morphia, a day or two later. At the autopsy the brachial plexus was found intact, with the exception of a branch of the median running to the thumb, which had been torn, and which was found floating in pus.

HERNIA OF THE SPLEEN WITH FAVORABLE TERMINATION.—Oks (*Cbl. f. Chir.*, No. 2, 1880; from *S. Petersb. Med. Wochens.*) tells of a woman of 70 who was gored by a mad bull in the side, causing a wound in the tenth intercostal space seven centimetres in length, with ragged edges. This was filled by the uninjured lower border of the spleen, which was pushed out some two finger-breadths. The spleen was washed with carbolic acid solution, replaced, and the wound sewed up with catgut. Externally ice was applied. The wound healed by first intention.

PHILADELPHIA MEDICAL TIMES.

PHILADELPHIA, FEBRUARY 28, 1880.

EDITORIAL.

THE MEDICAL PROFESSION IN ENGLAND.

THE causes of the social status of the medical profession being lower in Great Britain than in America are not difficult to discover. It must be remembered that social rank is a matter of relation, and that in England there is a large class of people artificially set apart as superior to their fellow-men, and mostly supported in great affluence by hereditary fortunes. Another relic of mediæval barbarism that still holds sway in the mother-country with a force almost inconceivable in this land of new ideas is the powerful effect of broad acres in exalting their fortunate possessors. Most of the English nobility have large landed possessions, and hence in a two-fold way command the respect of their less fortunate brother Englishmen. For a doctor to attain to the lower ranks of the nobility is not unknown, but knighthood may be conferred upon a fortunate provincial mayor who receives her Majesty in some town of the country districts, and very rarely indeed is the doctor able to boast of sufficient estates to rival even the country squire. Medical men are upon the apex in this country, because we have no privileged noble class sustained by that deference for artificial rank which has been ingrained in the English character by the training of successive generations.

The reasons assigned do not, however, account for the fact that, whilst in this country the medical profession is at least as powerful as the legal or clerical, in England its influence bears no comparison with that of its sister professions. The explanation of this anomaly is to be found

in the relations of the professions to the government in the two countries. The seat of the bishops in the House of Lords is assured, whilst every young, ambitious English lawyer may hope some day to sit as a peer of the realm. Until there are medical lords who have a right to speak upon the floor of the House of Lords, and who shall exert an influence in the decision of all questions of State medicine comparable to that of the law lords in legal questions, the medical profession in Great Britain cannot expect to control the governmental action as we are able to do in America, or to be recognized by the mass of Englishmen as entirely the peers of members of the other professions.

LEADING ARTICLES.

COLOR-BLINDNESS AND OTHER DEFECTS OF VISION IN RAIL- ROAD EMPLOYÉS.

THERE has been much sensational talk of late regarding color-blindness among the employés of our railroad and marine services, and, if we were to believe the current rumor, accidents have been daily happening on account of the inability of engine-drivers and signal-men to distinguish between the colors indicating safety and those warning against danger. The subject has even been taken up by the enterprising novelist, and tales of harrowing interest have turned upon the errors of purblind pointsmen.

Exactly how much truth lies at the bottom of this belief in the general prevalence of color-blindness has heretofore been difficult for any but experts to determine, and indeed the data necessary to form an intelligent opinion have been wanting. As a contribution to our knowledge of the subject, the recent report of the Massachusetts State Board of Railroad Commissioners possesses much interest; the more so because the Board has had the benefit of the advice and experience of Dr. B. Joy Jeffries, who is so well known as a specialist in this direction.

The colored worsteds recommended by Prof. Holmgren were used in the investigation, and also colored flags and lanterns. A large number of railroad employés were

personally examined by the Board, which also corresponded with foreign authorities as well as American railroad men, and we shall endeavor to give a brief résumé of the facts which the Board has ascertained, and the conclusions to which their investigations have led them.

Color-blindness, as is known, may be either total or partial, and partial color-blindness may be subdivided into complete color-blindness, including red-, green-, and violet-blindness; incomplete color-blindness, where the sense as to one or more colors is feeble. The varieties of practical importance in railroad management are total color-blindness and red- and green-color-blindness, the last two colors being very generally employed as signals.

It need hardly be said that such a defect is a source of danger while railroad trains are run by colored signals. It is true, however, as the Massachusetts Commissioners confess, that no railroad accident has ever been traced to this cause. But the possibility of such an accident is beyond question, and, indeed, one employé among those examined had, it was found, led several engine-drivers into errors for which they had been reprimanded. No doubt existed that he did this by displaying the wrong signals. The mere fact that an individual placed in front of a number of colored worsteds may make mistakes in the endeavor to match red with red or green with green does not prove that he is incapable of distinguishing railway signals. It is also to be noted that color-blindness is often connected with good vision in other respects, and particularly with a quicker perception of faintly-illuminated objects, so that, contrary to common belief, our railway signals are safer, so far as liability to mistake by the color-blind is concerned, by night than by day. It is said that some color-blind engine-drivers who distinguish colors successfully do so by guessing at the colors by the varying intensity of the light. But for practical purposes, the sensation of color being subjective, it makes little difference how he distinguishes colors, so long as he does so rapidly and unerringly.

It has been ascertained by the investigations of Dr. Keyser, of this city, that about three and one-half per cent. of all the employés on the roads terminating in Philadelphia (excluding those on the Pennsylvania road, not examined) have defects of such a character as to make them really

incapable and unsafe to occupy the positions they hold. A similar percentage has been ascertained by other observers to exist generally. It appears to be the opinion of the Massachusetts Board of Railroad Commissioners that examinations as to color-blindness may be made as well by laymen as by experts; but this view is not a safe one, and in any investigation with pretensions to thoroughness an expert should certainly be included among the examiners.

A matter of equal importance to the occurrence of color-blindness among railway employés is that of defective vision; and it appears that heretofore our railway companies have not been sufficiently careful in the examination of those in their employ holding responsible positions requiring clearness of vision. It is not usually the defect of near-sightedness which impairs the usefulness of railroad employés, but rather the gradual impairment of vision from old age or other causes. The members of the Board, while they cannot speak of any railroad accident as resulting from color-blindness, do know cases where defective vision has led to such accidents.

The final conclusions of the Board are:

1. That the existence of color-blindness, total and partial, is a well-established fact, and that there are men who, by reason of such defect, are unfit for positions on railroads requiring ability to distinguish color-signals.
2. That the extent of dangerous color-blindness, *i.e.*, such color-blindness as unfits persons for railroad employment, has been greatly exaggerated, and that a very small percentage of persons are, for this reason, unfit for such employment.
3. That examination may be properly made by persons not medical experts; and that such examinations will certainly be sufficient if doubtful cases are referred to such experts.
4. The Board recommends that every railroad company shall have an annual examination of every employé whose duties require or may require capacity to distinguish form or color-signals, and that no one shall be so employed who has not been thus examined. The examination should refer to color-blindness and to other defects in vision. It should include all who are in any way concerned in the movement of trains.
5. The Board does not recommend any legislation on the subject. The interest of each corporation is strong enough to insure careful examination.

CORRESPONDENCE.

ON THE PHYSIOLOGY OF WRITING.

NO doubt the title at the head of this letter will look odd to you, Mr. Editor; but look again, and perhaps you will think, with your correspondent, that the oddness arises from the neglect with which this important subject has been treated by physiologists until a time which can still be given, not in months, or even weeks, but in days.

Man is an egotistical animal, and he likes to know all about, as well as hear, his own voice; and perhaps this is the reason why the physiology of speech is so well known that the very perfection of our knowledge is often a source of error, while the equally important—even though it be less noisy—function of writing has been treated in such a “step-motherly” manner. This latter is a practical subject, and it does not necessitate the making of experiments on any animals but man,—desiderata of importance in America. It is for these reasons that I wish to draw the attention of the readers of the *Times* to what has recently been done on this subject.

At a recent meeting of the Institut Genevois, Professor Carl Vogt spoke of the results of his experiments on this subject. These results I will succinctly give:

1. “People write a given word in the ordinary manner, *i.e.*, with the right hand, as well with the eyes closed as with the same open.”
2. “While this is true of words, it is not true of sentences. In order to allow the proper amount of space between words, we need the assistance of our eyes.”
3. “In writing from right to left instead of, as the Christian nations do, from left to right, and the eyes being shut, we write better with the left hand than with the right.”

This last statement is true, provided the words are written as the Semitic races write. For instance, the word *abel*—the one used by the lecturer—must be written *leba*; so that the word could only be read by turning the paper and holding it before a light to see what was written on the other side,—an act which I strongly recommend the printer to perform before he attempts to put the word in type. But when the word is written *abel*, only that you commence with the *l* and go from right to left, instead of commencing with the *a* and writing from left to right, I have found it more convenient and the results more satisfactory with the right hand than with the left, this being just the opposite result from that obtained by Professor Vogt. The only difference consisted in his transposing the direction of the letters of the words as well as the direction of writing, while I only did the latter. I have often repeated the experiment of the distinguished professor, and my results have confirmed those obtained by him. It must not be forgotten, in repeating

these experiments, that they were made with the eyes closed, and, further, that “practice makes perfect.”

The lecturer further alluded to cases described by Dr. Eslenmayer, of Germany, where hemiplegic patients in whom the right side was paralyzed wrote with their left hands, employing the *Semitic* instead of the *Aryan* manner of writing. These patients, when asked why they did not write as they would with the right hand, replied that they would were they able to use the other hand, but with the left hand they could only write in the manner in which they did.

Professor Vogt then gave a very ingenious theory to explain the facts observed. He believes that the words we write are taken from “photographic impressions” of the words existing in the hemispheres, and these impressions exist in the right hemisphere in a manner reversed from that in which they exist in the left; that they are negatives of the photographs which the hand puts on paper. The impression of the word *abel* in the left hemisphere would be, according to Dr. Vogt, just as it is here written, but the impression received by the right brain of the same word would be *leba*. Consequently, a man with hemiplegia on the right side from a clot in the left hemisphere *may* knowingly write after the Semitic type, even against his will.

As another argument in favor of his theory, the lecturer spoke of the third of the series of facts previously mentioned,—when the eyes of a person are closed, he is best able to write in the Semitic manner with the left hand, and in the manner of the Aryans with the right hand.

In the discussion which followed, Professors D'Espine, Schiff, and Vulliet opposed the theory advanced by Professor Vogt. Dr. D'Espine thought that the difference could be explained by the circumstance that the right hand, being accustomed to writing from left to right, naturally finds it more difficult to write in the reverse sense than the left, which is a novice in writing.

Professor Schiff observed that the innervation of the muscles of the arm naturally forces these from the body, the left from right to left, and the right in the opposite direction. He believes that the difference in the facility with which we write with the different hands in the two directions directly depends on this fact.

Against both of these arguments against the theory of Dr. Vogt certain facts observed by your correspondent bore considerable weight. It was before stated that I had made the observation that *abel*, written in the Semitic style, commencing with the *a*, every letter having its direction reversed, is written better and with more facility with the left than with the right hand. The reverse is true when, adopting the direction as before, we commence with the *e*, and give each letter the shape and direction it would have when

written in the ordinary manner, thus, a-b-e-l. While habit (as Dr. D'Espine would have it) or natural innervation of the muscles (according to Dr. Schiff) might explain the facts observed by Dr. Vogt, they could not explain my observations. In Professor Vogt's experiments the word was written *leba*, and the brain had to think of it as such. In my experiments the word was written *abel*, and the brain must have thought of it as it is here written. The *direction of writing was in both series of experiments the same,—from right to left*. So, the only essential difference between our experiments lay in the brain, *i.e.*, in the manner in which the word was thought of before writing it, and, consequently, the differences in the results obtained can only be sought for in the brain.

It not being true that it is most facile to write with your left hand from right to left, and with the right in the reverse direction, we must slightly change the wording of Professor Vogt's theory. According to my views, it should read: *The impressions of a word to be written possessed by the two cerebral hemispheres are, as in the well-known case of the two retinae, the one the reverse of the other. In writing, the impression from the side of the brain opposite to the hand which writes is more readily written in the dark by this hand than by the hand which corresponds to the side of the brain from which the impression is derived.*

Professor Schiff contended that the word to be written must have previously been heard. Professor Vulliet, in confirmation of this view, mentioned the well-known fact of Beethoven being able to compose music of the highest order for many years after he had become completely deaf. He must have possessed a subjective sensation of hearing in the centres for this function, or this would have been impossible.

Professor Schiff acknowledged that in the case of those born deaf-mutes, who have learned to converse by signs, to read, and even to write, no "subjective sensations of hearing could exist.

This finished the discussion; but before finishing this letter I wish to allude to a subject indirectly connected with the one discussed. All the Semitic tribes and nations have always written from right to left. Dr. Eslenmeyer says they did it because they wrote with their left hands. A long convalescence and the assistance of several friends who have made ancient manuscripts a life-long study have given me the opportunity of thoroughly studying this question. From these studies the conclusion is inevitable that from time immemorial the Semitic tribes wrote with their right hands. It is well known that the Semitic nations of the present day all write in this manner. Among the older nations writing was a holy art. The left hand has always been and is still considered

unclean, and has to perform all the unclean offices connected with the body. It is very significant, in this connection, that in several of the Semitic languages the words hand and right are considered synonymous, the left hand being a thing too low to mention.

Tables being of modern origin and not possessed by these nations, their writing was done by pushing the skins towards the right hand, this organ being stationary. As a consequence, the writing was from right to left. This is the manner in which the Turks and Arabs of the present day write. The Koran commands you to keep your right hand quiet.

B. F. LAUTENBACH.

GENEVA, January 20, 1880.

PROCEEDINGS OF SOCIETIES.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

AN adjourned conversational meeting of the Society was held at the hall of the College of Physicians, Philadelphia, December 17, 1879, Professor Henry H. Smith, President of the Society, in the chair.

SKIN-GRAFTING.

Dr. Laurence Turnbull made some practical remarks on skin-grafting, and exhibited photographs from a remarkable case occurring in the practice of Dr. Hayes, of Tralee, Ireland. The patient was exhibited before the meeting of the British Medical Association.

Dr. Charles B. Nancrede, from considerable experience of skin-grafting, had come to the conclusion that when they are successful the new epidermis is more apt to break down and ulcerate than surfaces cicatrized in the ordinary manner. In cases of leg-ulcer he had repeatedly seen the new surface break down and disappear very rapidly after grafting.

Dr. Richard J. Lewis said that the subject of skin-grafting has now become very familiar. He had adopted the expedient very many times, and had no doubt that it often is of great service in the healing of large ulcerated surfaces. He called attention to the fact that there were some peculiar conditions of the granulating surface requisite to insure the development of the grafts; in some apparently healthy surfaces the grafts will not grow; in rupial ulcers and other unhealthy sores the grafts will sometimes succeed, and yet will fail in simple ulcerations. For this he was unable to offer any adequate explanation. He referred to a case in which the scalp of a young woman had been torn off by machinery, treated subsequently at the Pennsylvania Hospital, and a perfectly clean granulating surface followed, upon which great numbers of grafts were placed, but none would germinate.

When the grafts succeed, it is remarkable how much they stimulate the surface of an old ulcer. In an ulcer with overlapping edges,

such as are so often seen in old leg-ulcers at Blockley, it was formerly the custom to cut these edges away, but he had repeatedly seen, after the application of skin-grafts, so much stimulation as to make surface level with surrounding skin and the edges disappear.

It is a curious fact that, no matter what the shape of a chronic ulcer is originally, it becomes nearly oval before it heals; however irregular it may have been, it rarely heals before assuming this form.

In the cicatrizing of large surfaces skin-grafts are applied to good purpose. In the case of a man received into the Pennsylvania Hospital, whose back was burned by sleeping near a lime-kiln, and was intoxicated by its fumes, the entire back was made to quickly commence healing by skin-grafting. A large number of grafts were inserted, and were spreading nicely, when the man took a chill and hot fever, and every one disappeared by rapidly-destructive ulceration. The surface was grafted again with complete success.

As to the manner of taking the grafts, his plan was to introduce a fine needle through the outer layer of the skin, and snip off the elevated minute piece with iris scissors, removing only a small point of cuticle and some of the superficial dermoid layer. He had noticed no difference whatever in the rapidity of the growth in the large and small grafts.

In the process of grafting, the small pieces of integument are simply laid, with the cuticle side uppermost, upon the granulations, the surface being rather dry. After leaving the ulcer uncovered for several hours, he covers it with a piece of waxed paper, to protect it from the bandage. The first phenomenon noticed is the disappearance of the graft. The little piece of cuticle becomes detached and is lost in the discharges from the surface of the ulcer, whilst the true dermoid material remains. Following this, in about two days, a little lilac-tinted spot is seen, considerably below the level of the granulations; then this spot increases, and its subsequent growth is very evident. He regarded the plan of leaving the ulcer uncovered for some hours after the operation to be much better than immediately applying any kind of dressing.

In reply to a question, he stated that it did not seem to make any difference whether the grafts were taken from the same individual or another. In truth, he had frequently transplanted grafts taken from the integument of amputated legs and arms with success.

He had never seen any bad results from this practice, but would not recommend its general adoption for fear of specific infection.

Dr. L. Turnbull, in replying to the objections raised, said that out of twenty-four cases in which he had taken notes, in only two cases had the surface afterwards broken down. As regards the character of the sore to which grafts may be applied, Dr. Levis has used

them in rupial ulcers, and Bryant has reported several cases. In the speaker's opinion, nearly all healthy granulating surfaces are suitable. He preferred covering the graft to Dr. Levis's plan, and agreed with Dr. Hayes, who, after applying adhesive plaster and bandage, left it undisturbed for four days, as before this time it is impossible to tell whether the graft will take or not.

As to the source of the graft, it is only necessary that the skin should be healthy. A case is reported in London, where the skin of a white person was grafted upon a colored man, with successful piebald effect.

THE AUDIPHONE.

Dr. C. H. Thomas, by previous announcement, gave a descriptive lecture upon the audiphone, explaining the mechanical principles involved in its operation and method of application, and suggested some important and practical modifications of the construction, and new applications of the principle involved. The lecturer presented several patients to illustrate his remarks (see page 270).

Dr. J. Solis Cohen inquired whether the vibrations in this new route of hearing might not, by constantly jarring the bones of the head, produce some injury to the delicate structures of the brain. The mode of hearing suggested by vibrations of the cranial bones is not the natural method, and may lead to peculiar results similar to those of railroad injury to the nervous system.

Dr. Charles Turnbull said, in reply, that the man who had used this instrument for the longest time was Mr. Rhodes himself, who employed it constantly for three years. In the speaker's opinion, no evidence of injury to the brain existed in this case; on the contrary, he considered him very shrewd in the management of his business. He also called the attention of the Society to the fact that the line is very clearly drawn between the two classes of cases. When the auditory nerve is intact, deafness must necessarily be due to disease of the middle ear or obstruction of the auditory canal. These cases can hear with the audiphone; but in disease of the auditory nerve this will be of no service.

Dr. S. D. Risley said that in middle-ear deafness patients can hear better through the teeth than in health or when the canal is unobstructed. He considered this a practical question in the use of the audiphone: If the auditory canal be closed, can the patient hear through the audiphone more distinctly?

Dr. Thomas, in conclusion, promised to further investigate the capabilities of the instrument. He had given considerable thought to the subject, and had concluded that the vibrations produced in hearing in this manner are of the same kind as those produced in our own cranial bones in the act of speaking, though far less intense, and therefore incapable of doing harm.

The thanks of the Society were, on motion, tendered to Drs. Turnbull and Thomas for their interesting communications.

REVIEWS AND BOOK NOTICES.

CLINICAL MEDICINE: A SYSTEMATIC TREATISE ON THE DIAGNOSIS AND TREATMENT OF DISEASES. Designed for the Use of Students and Practitioners of Medicine. By AUSTIN FLINT, M.D. Philadelphia, Henry C. Lea, 1879.

There are students and students. There is the student of the text-book, and the student of the science and art of medicine. In this book Dr. Flint has written for the former, when it was to be expected of his vast experience and philosophical mind that he would write for the latter. For the former he has already written much. His reputation in this direction has probably no equal in this country. There is too much of this literature in America. The book about which the publisher declares that no student should be without it, unfortunately belongs very often to this class. The student who found the ready manual just the thing to bring him out of the scrapes of the examination-room, finds it afterwards just the thing to bring him out of the scrapes of the sick-room. The carefully-written monograph, the elaborate and vivid page of Trousseau, the reports of cases in the medical press, are all ignored. What is the use? Is not everything they contain condensed in the manual?

This much about the purpose of the book; but as to the manner in which this purpose has been attained, nothing but the most unbounded praise is equal to the merits of the book. At once, in the introductory chapter, we recognize the master's hand. It treats of general symptomatology and general therapeutics, including some remarks on prophylaxis. It is admirably written. We recommend the advice upon note-taking. But we confess that these generalities have always appeared to us as useless. When the student reads that a weak pulse is found in this and the other and every disease, that emaciation is a symptom of as large a number of affections, that one facies is characteristic of several diseases, and that a little touch of salowness here and of cyanosis there will convert it into the characteristic facies of several other diseases. In fact, all that we can say is, that these introductory pages are not thumb-marked in the text-books of students.

We are surprised to find that the only mention made of the physiological action of drugs is to be found in the chapter on "Sources of Error in Therapeutics." We do not deny what he says upon the subject; but we believe that its consideration from another point of view might also have found a prominent

place in the chapter on "Medicinal Treatment in Cases of Diseases."

"Section First.—Diseases of the Respiratory System." Like all the other sections, this is preceded by some consideration of the general symptomatology of the organs in question. In the present case this includes physical signs. It would be difficult to condense this matter more ably than it has been done by the author. We think, however, that the subject of laryngoscopy has not received the consideration it deserves. After the preliminary observations the author takes up the different diseases. A classification both pathological and semeiological is used. This serves very well the purpose of the book, and it is to be regretted that it is not adhered to throughout the work. We suppose, however, that the difficulties are insurmountable.

The arrangement in this section is as follows: I. "Acute Inflammatory Diseases of the Respiratory Organs within the Chest." This includes Pleurisy, Pneumonia, Bronchitis, and Capillary Bronchitis. After giving briefly a definition of these diseases, he takes up the symptoms separately, viz., prodromic events and invasion; then the local symptoms, as pain, etc.; then the physical signs, inspection, etc.; and under every heading he devotes a paragraph to each affection. Finally a paragraph is given to the etiology of the four diseases. In discussing the treatment each disease is taken up separately. In the treatment of acute pleurisy the author does not wait much before tapping. In the treatment of pneumonia, which is considered as an essential fever, he recommends the use of large doses of quinine in the early stages. Objection is made to the use of tartar emetic in bronchitis. All these matters and many other interesting details of the different sections we should like to bring before our reader, but space does not permit. This chapter terminates with a consideration of the varieties of acute pleurisy, pneumonia, and bronchitis, viz.: Circumscribed Pleurisy, Empyema, Pleurisy with Pneumothorax, Embolic Pneumonia, Hypostatic Pneumonia, Fibrinous Bronchitis, Broncho-Pneumonia, Epidemic Bronchitis, Pertussis, Summer and Autumnal Bronchitis. In other chapters, to the number of five, all the other diseases of the respiratory organs are studied.

"Section Second.—Diseases of the Circulatory System." We shall always find it more profitable to read the author's treatise on disease of the heart rather than these pages.

"Section Third.—Diseases of the Digestive System." It seems to us that the gastric and intestinal affections are too much subdivided: thus, we find acute gastritis, subacute gastritis, chronic gastritis, difficult digestion or dyspepsia, imperfect digestion or indigestion. The chapters on dysenteric affections are very good. The division of intestinal obstructions into obstructions with and without strangula-

tion is very appropriate in a clinical treatise. In the section devoted to enlargements of the liver, we believe that it might have been advantageous to follow the semeiological method employed in the chapter on acute inflammations of the respiratory organs. We notice that the subject of interstitial hepatitis with hypertrophy does not receive the proper attention.

"Section Fifth.—Diseases of the Nervous System." It is the most complete one in the book. We would venture to suggest, however, that some remarks on electricity might be introduced into the preliminary section.

The last section is devoted to the fevers, and includes rheumatism, gout, and cholera. The preliminary chapter contains good practical advice on the antipyretic treatment and the use of cold in fevers. Diphtheria is, of course, included in this chapter. The author considers croup as a local disease, and treats of it in the chapter on inflammation of the larynx.

We have been struck with some remarks to be found in the chapter on typhoid fever. They refer to a number of cases of fever not rare in New York, and which cannot be classified as typhoid. We have seen many such cases in Philadelphia. Of these the author says, "It is highly probable that these are actually cases of one or more species of fever distinct from typhoid. That the existence of fevers not now included in the nosology will hereafter be added, may be predicted with much confidence." (See pp. 684 and 685.)

J. G.

A SYSTEM OF MEDICINE. By J. RUSSELL REYNOLDS. With Numerous Additions and Illustrations by Dr. HENRY HARTSHORNE. Philadelphia, H. C. Lea.

The original method of publication of Reynolds's System of Medicine led to the curious result that, whilst the second edition of the first volume was published in 1870, the first edition of the last volume did not appear until early in 1879. In the present reprint it is obvious that many of the articles are eight or nine years old; and medical articles are not, like wine, improved by age. The attempt has been made to atone for lack of freshness in the reprint by the labor of an American editor. The selection of Dr. Henry Hartshorne for this position evinced the well-known shrewdness of the publisher, but, from the very nature of the case, the revision must be very imperfect. The editor dare not rewrite the articles; he can only add in brackets, and we all know what a thing of shreds and patches a work revised in this way becomes. The good skill of a tailor may be fairly shown in mending the breeches, but, after all, the aforesaid pantaloons are only patched. Then, again, the editor is much limited in space,—a cause, no doubt, why the value and the lack of value, the use and abuse, of cold bathing in typhoid fever occupy for their discussion only

one-fourth of a column, and that too in a system of medicine which is to stretch over considerably more than six thousand columns. For a similar reason probably we find no notice whatever of the elaborate modern researches upon the organisms which are asserted to be peculiar to the diphtheritic exudation, and are even believed by some capable investigators to be the *fons et origo mali*.

The value of the work before us consists in its representing English medical thought and teaching, precisely as Ziemssen's great work does the German school of medicine; and it is a great pity that we could not have had a really second edition of the work, with the articles revised by the specialists who had originally written them, or, when these authors are, as in several instances, dead, by their successors in London.

The five original volumes, with the additions of the editor, occupy now only three volumes. Of course the print is small and very close, but the type is so clear that eyes read easily and without fatigue.

PHARMACOGRAPHIA. By FRED. A. FLÜCKIGER and DANIEL STANBURY. Second Edition.

The first edition of this most original and important book upon materia medica was rapidly exhausted, so that the work has been out of print for some time. The death of Mr. Stanbury, in 1875, gave rise to a well-grounded fear that then a new edition would not be forthcoming, a fear which, fortunately, now is laid to rest. By the aid of various friends, prominent among whom is Dr. Charles Rice, of New York, Professor Flückiger has been able to maintain the high character of the book, which even in its second edition has not lost that freshness which so charmed every one upon its first appearance.

GLEANINGS FROM EXCHANGES.

INTRA-UTERINE MEDICATION.—Dr. Lombe Athill (*Brit. Med. Jour.*, vol. ii., 1879, p. 930), when dealing with cases exhibiting symptoms of intra-uterine disease, invariably directs his treatment to the diseased surface. The symptoms are: 1, derangements of the menstrual functions; 2, uterine catarrh; 3, pain, specially if caused by the passage of the uterine sound. Fluids should never be introduced into the cavity of the uterus unless the cervix be first freely dilated: the treatment is in any case unsafe and objectionable. Ointments are difficult of application and inefficient; so are powders. Dr. Athill uses the following agents only: carbolic acid, tincture of iodine, iodized phenol, nitric acid, solid nitrate of silver, zinc points, crayons of iodoform. In using carbolic acid, the probe by means of which the agent is carried to the fundus must be passed up twice, for much of the acid with

which the cotton is charged is neutralized as it passes through the cervical canal the first time. The second application gives more pain than the first, but this soon dies away, as the acid is a local anæsthetic. The preparation used is composed of two parts carbolic acid and one part spirits or glycerin. It should usually be applied every three or four days for some weeks. Iodine is dirty and mal-odorous, but sometimes useful as an alternative. Dr. Athill uses Battey's (of Georgia) iodized phenol (iodine one part, crystallized carbolic acid two parts; mix, and combine with gentle heat). Diluted it is an efficient escharotic, and useful in chronic endomyelitis of old women, in whom a fetid discharge frequently occurs. Nitric acid should only be employed in severe cases. It is very efficient. The patient should be kept quiet a day or longer after the application. It should never be applied except at the patient's house. A canula should be used when it is applied to the interior of the uterus, to protect the cervix, which may otherwise contract subsequently. Solid nitrate of silver and zinc points are useful, but sometimes cause cellulitis. They are most useful when menorrhagia occurs, the os and cervical canal being patulous, but the uterus not much enlarged, and when the hemorrhage is thought to be due to a vascular condition of the intra-uterine mucous membrane, rather than to the existence of a thickened and granular condition of its surface. They should not be used if copious uterine catarrh be present. Iodoform sometimes allays pain, but is uncertain in its action, and has little, if any, effect as a caustic.

ACONITIA.—Dr. Oulmont, Physician of the Hôtel-Dieu, terminates a memoir on aconitia, which he presented to the Académie de Médecine, with the following considerations. It is a well-defined medicinal agent, which acts on man in a regular and certain manner, but which, on account of its energy, should only be employed in very small doses at long intervals. Frequently neuralgias are accompanied by well-marked intermittent and periodic accidents, to combat which quinine should be added. The important point, both for patient and physician, is to be able to rely upon a pure and unchangeable medicinal agent which is always identical in its composition and very scrupulously dosed. It is in order to attain this end that Dr. Moussette has prepared his pills, each containing very exactly a fifth of a milligramme of crystallized aconitia and five centigrammes of pure quinine. In consequence of the energetic action of the aconitia, the susceptibility of the patient should be tried by only commencing the first day with three pills,—one morning, mid-day, and evening. If on the first day no marked sedative action is obtained, we may gradually augment the dose by a pill per diem, until six are taken in the twenty-four hours, at which

dose we should remain until the pain is subdued, only going beyond it in exceptional cases. If a little diarrhoea comes on, the dose should be diminished. To sum up, physiological investigations and clinical observations conducted in the Paris hospitals have demonstrated that the sedative action exerted by Moussette's pills on the circulatory apparatus, through the medium of the vaso-motor nerves, indicates their employment in neuralgia of the trifacial, congestive neuralgias, and in rheumatic, painful, and inflammatory affections, etc.—*Medical Times and Gazette; Gaz. des Hôp.*, November 25, 1879.

CORVISART AND NAPOLEON I.—The *Lyon Médical* extracts the following anecdote from the memoirs of Madame Rémusat recently published in the *Revue des Deux Mondes*: "The Emperor, having renounced the divorce for the time, but always pressed by the desire of having an heir, asked his wife whether she would consent to accept a son who only belonged to himself, and to feign a pregnancy with sufficient skill to deceive everybody. She seemed anything but adverse to comply with his wish in this respect. Bonaparte then, sending for Corvisart, his first physician, in whom he placed a merited and long-tried trust, confided his project to him. 'If I am able,' he said, 'to assure myself of the birth of a boy, who will be my own son, my wish is that, a witness of the feigned delivery of the Empress, you should do all that is necessary for giving to this device every appearance of a reality.' Corvisart, considering that the delicacy of his probity was compromised by this proposition, promised the most inviolable secrecy, but refused to lend himself to what was required of him. It was not until long afterwards, and subsequent to the second marriage of Bonaparte, that he confided this anecdote to me, attesting to me at the same time the legitimate birth of the King of Rome, concerning which it had been endeavored to excite doubts that were perfectly unjust."

WICKERSHEIMER'S PRESERVATIVE FLUID.—The composition of this fluid is as follows. Alum 100 grammes, common salt 25 gr., saltpetre 12 gr., potash 60 gr., and arsenious acid 10 gr., are to be dissolved in 3000 gr. boiling water. On cooling, the liquid is to be filtered. To every two and a half litres, supposing a large quantity to be prepared at once, a litre of glycerin and 250 ccm. of methylic alcohol are to be added. Herr Wickersheimer states that the bodies of animals or men preserved with this fluid retain their form, color, and pliability completely. After several years the muscles look as fresh on section as if they belonged to a recent corpse. For embalming purposes the body is first injected with the fluid, in the proportion of one litre and a half for a child of two years, and of five litres for an adult. It then is immersed in a bath of the fluid for several days, after which it is rubbed dry, swathed in bandages wetted with

the fluid, and preserved in an air-tight case. For bodies which are to be dissected the injection alone suffices. Small vertebrates and invertebrates can be kept simply immersed in the fluid, or if wanted in the dry state may be in it six to twelve days, and then be taken out and dried in the open air. Hollow organs, such as the lungs and intestinal tract, are best injected with it before immersion. The process seems to have the recommendation of simplicity and cheapness, as well as that of its preserving the natural color and the pliability of the objects treated by it.

RECTAL ALIMENTATION BY MEANS OF DESICCATED BLOOD.—Dr. F. E. Stewart (*N. Y. Med. Jour.*, vol. i., 1880, p. 11) calls attention to the value of blood as an aliment *per rectum*, and to the convenience of desiccated blood, drawn from healthy animals and made below the temperature of 110° F. A little more than a drachm of the dried article represents a fluidounce of blood. To dissolve, a drachm should be thrown into a fluidounce of water and allowed to stand until the albumen becomes perfectly soft, to prevent sticking to stirring-rod or dish. Gentle agitation will then convert it into a perfectly homogeneous fluid, closely resembling fresh blood. It is a very difficult matter to dissolve dried blood by pouring water upon it, for it immediately adheres together in lumps, and sticks to everything brought into contact with it.

From four to six drachms of the powder daily, or more, is the dose, which may be given at once, at bedtime, or in divided portions during the day, as circumstances seem to require.

If a greater amount than can be absorbed be injected at once, and decomposition result therefrom, it is advised to wash out the rectum with tepid water before continuing the medication.

CASE OF EAR SNEEZING.—Dr. Jas. Russell's case (*Brit. Med. Jour.*, vol. ii., 1879, p. 937) was that of a man of 56, of nervous temperament, who was suddenly taken with "a kind of gaping and sneezing;" the gaping seemed to come from his heart; the sneezing was incessant during the next two days and nights. In the afternoon of the second-day, after a severe sneezing-fit, he tumbled down, and was unconscious two or three minutes; on recovering, he was completely deaf, so that, not knowing what had happened, he was nearly knocked down by a passing carriage in crossing the street. On the following afternoon he began to hear on the left side, but the sound seemed "to come the contrary way;" if from the front it seemed to come from behind, if from one side it seemed to come from the other. Later he suffered from humming and buzzing with pain in the ear. There was no cough or vertigo. Examination showed impacted wax in the left ear, with acute inflammation of the tympanum at the attachment of the vesicles.

CASE OF "ANGINA LUDOVICI."—J. A. Erskine Stuart (*Brit. Med. Jour.*, vol. ii., 1879, p. 937) saw a child six months old presenting a hard brawny swelling extending over the whole front of the neck from the lower jaw downwards. The skin over this was natural in color, except a coin-sized patch immediately below the symphysis of the lower jaw, which was black in color, surrounded by a bluish areola, and fluctuating on pressure. The face was much swollen, and pitted on pressure. The parotid and submaxillary glands were enlarged and hard. Nothing wrong with the throat inside. The child was feverish, with a weak pulse, and died next day. The pathology of the disease is simply an inflammation of the cellular tissue of the neck, going on to suppuration.

ACUTE ORCHITIS TREATED WITH THE ROLLER BANDAGE.—Take a roller bandage one inch wide, four yards long, and thoroughly imbued with starch. Seize the affected gland with the left hand so as to make a pedunculated tumor of it, and apply four turns of the bandage around the neck of the tumor. Then wind the bandage about the tumor itself in such a way as to effect firm compression. The patient should be kept in bed and the bandage be applied morning and night; no other treatment is necessary. In a few days the swelling will all be removed, but the bandaging should be continued a little longer, to prevent relapse. This method will be found less annoying and painful than that of using adhesive plaster.—*Dr. L. A. Dugas, in New Orleans Medical and Surgical Journal*, January, 1880.

BOROCITRATE OF MAGNESIA AS A SOLVENT OF URIC ACID CALCULI.—Dr. Koehler, of Kosten, Germany, recommends (*Berliner Klinische Wochenschrift*, November 3, 1879) the above salt in case of gravel or probable uric acid calculus. It is prepared by dissolving boracite, a natural borate of magnesia, which is found at Stassfurt and hence is also called Stassfurtite, in citric acid. It forms a white powder with a sourish taste. He gives it mixed with white sugar (one to two). The dose is a large teaspoonful (*Kaffeelöffel*) in half a tumblerful of water three times a day.—*Med. Times and Gaz.*

TEA-TASTING A HEALTHY PURSUIT.—Dr. C. L. Dana (*N. Y. Med. Record*, vol. i., 1879, p. 85), in an interesting article on Tea-Tasters, states that he has found these gentlemen, who taste, on an average, two hundred cups of tea per day, to enjoy very good health. Dyspepsia is unusual among them, one gentleman even stating that he had been cured of this disease since taking up the tea business. Japan tea is said to increase the flow of urine, Formosa to a less extent, while the other teas are believed to have no such effect.

CALOMEL vs. HYDRARGYRUM CUM CRETA.—I have been reading the communication of Mr. E. Marlett Boddy on the advantage of calomel as a remedy in some of the diseases

of childhood. I write now a few lines to express my entire concurrence with the author in his disapproval of the well-known powder of mercury with chalk. As a means by which the system may be gradually saturated with mercury, small doses of mercury and chalk-powder are doubtless very effectual; but as a cholagogue to induce secretion from the duodenum and liver, I believe a far more certain medicine is found in calomel. One grain of calomel triturated for some time with twelve grains of sugar of milk forms a very active cholagogue powder, when administered in a dose of one or two grains. The well-known blue-pill also may be depended upon for cholagogue action, especially if the pill-mass be of some age, so that a small quantity of the suboxide of mercury has been developed in it. Metallic mercury, "killed" by minute trituration with sugar of milk, forms a gray powder that can be easily prepared in the same way as the hydrargyrum cum creta, and, so far as my experience goes, is a preferable medicine. Hydrargyrum cum magnesia I have also tried in one case, but have nothing special to report of its action. I give a decided preference to calomel and blue-pill as the best form for obtaining the cholagogue action of mercury. The practice of frequently administering small doses of hydrargyrum cum creta with a view to correcting secretions is objectionable, as its tendency is gradually to impregnate the system with the mercury, and so produce irritability and anæmia.—*John C. Thorowgood, in Medical Press and Circular.*

POISONS AND ANTIDOTES.—In an interesting article on this subject, by Dr. F. A. Falck, referred to in *Schmidt's Jahrbücher*, the writer points out that the so-called antagonism of opium and belladonna was noticed by Albinus and others as early as 1570. A real antagonism does not exist, according to Falck. His conclusions are as follows:

1. Atropin is a true antidote for muscarin, but not the latter for the former.
2. Duboisin is also a true antidote for muscarin.

3. Atropin and duboisin are also antagonistic to pilocarpin.

Atropin and physostigmin,
Strychnine and chloral hydrate,
Chloral hydrate and atropin,
Morphine and atropin,

are all respectively antidotal in a pharmacological sense, but not in a physiological one; that is, the one will diminish the symptoms caused by the other, but will not produce contrary physiological effects.

A RAPID CURE FOR COLD.—R. Rudolf (*Brit Med. Jour.*; from *Gas. Med. Ital.*) reports the following observation made on himself. Being seized with a severe coryza, he happened to chew one or two twigs of the eucalyptus, at the same time swallowing the saliva secreted, which had a bitter and aromatic flavor. To

his surprise, he found that in the course of half an hour the nasal catarrh had disappeared. Some days later he was seized with another attack from a fresh exposure to cold, when the same treatment was followed by an equally fortunate result. He then prescribed the remedy to several of his patients, all of whom were benefited in the same way. He believes that this treatment is only suitable in acute cases.

MODIFICATIONS OF THE POLITZER METHOD OF INFLATING THE MIDDLE EAR.—In inflating the middle ear, Dr. Holt employs a modification of Politzer's method, which does away with the swallowing of water. He directs the patient to fill the mouth tensely with air, while the air-bag is discharged as in the ordinary way. Dr. J. O. Tansley, one of the clinical assistants at the Manhattan Eye and Ear Hospital, has modified Dr. Holt's method. He causes the patient to pucker up his lips and blow from the mouth while he forces air into the nasal cavity with the bag.

MISCELLANY.

HONORS TO A YOUNG MEDICAL HERO.—Few large hospitals but have had in their history examples of courageous and devoted self-sacrifice on the part of their young resident physicians, fallen victims to malignant disease in the discharge of duty. Usually these victims have been permitted to die and be buried without any notice; but Paris has recently set the example of honoring the remains of a young physician, Georges Herbelin, who died from diphtheria contracted in the discharge of his duties as interne of the Hôpital Ste. Eugénie. The funeral—which was public—was attended by the Minister of the Interior, the Prefect of the Seine, the President of the Municipal Council of Paris, and by Professor Vulpian on the part of the Faculty of Medicine and Dr. Lamulongue on behalf of the hospital staff. Each of these distinguished men delivered an address at the grave. A worthy tribute to a medical martyr, but one heretofore, unfortunately, reserved only for distinguished generals or statesmen. Let us hope the example may be followed in other countries.

REMINISCENCES OF THE EDINBURGH INFIRMARY.—The old Edinburgh Infirmary, one of the most celebrated hospitals in the world, has recently been replaced by a new building. The *Medical Times and Gazette* (January 3 and 10) contains a picture of the old building, together with some interesting reminiscences by an old student. These should be read by all those who have at any time been connected with the old Pennsylvania Hospital in this city, which was modelled upon the Edinburgh institution, but which has now outlived its parent. In read-

ing the account of the old building one can trace every step in the plan of our Philadelphia institution.

HOW THEY DO IT IN NEW ORLEANS.—In a letter to the Board of Health on the subject of a complaint that a street contractor was burying dead dogs, etc., in the middle of certain streets, the "Administrator of Improvements" (?) defends himself by saying, "It has been a long-established custom to deposit offal, etc., on vacant squares in the various districts of the city. I believe it to be an advantage to place them on some of the low streets, where, mixed with ashes, etc., they can be used in raising the grade of such streets and rendering them passable." (!)

M. RAYNAUD inoculated a number of rabbits with the saliva and blood of a hydrophobic patient on the day before death. The inoculations of blood gave negative results; the inoculations of saliva, however, were followed by rabies in a relatively short space of time,—at most a few days. The submaxillary glands of two rabid rabbits inoculated on two healthy rabbits produced in a short time the symptoms of rabies.

AN ANTISCORBUTIC.—During the long voyage of Professor Nordenskjöld around the north coast of Asia, not a single case of scurvy occurred. This was due to the use of a small red berry that springs out of the ice and snow in the short summer. It is dried, mixed with reindeer's milk, and carried in a frozen state. It has a pleasant, slightly-acid taste.—*British Medical Journal*.

SEA-WATER BATHS.—The acknowledged value of sea-water bathing has inspired an enterprising company in London to supply that city with water from the English Channel. It is proposed to furnish it to every house for about eight dollars per year.—*Medical Press and Circular*.

DEATH OF AN INTERNE FROM SMALLPOX.—An interne of the Hôpital Beaujon, in Paris, has just died of smallpox,—a most unnecessary sacrifice. The internes are supposed to be examined as to previous vaccination, but revaccination should in all cases be attempted.

DR. MCFALLS makes use of Lugol's solution, thickened to the consistence of a cream with tannic acid, as a local application in diphtheria.—*New York Medical Record*.

DR. J. NEVINS HYDE, the distinguished dermatologist of Chicago, has succeeded Professor Byford in the senior editorship of the *Chicago Medical Journal and Examiner*.

THE New York Academy of Medicine has been the recipient of a beautiful and costly silver "loving-cup" presented by Mrs. John Jacob Astor.

A WELL-KNOWN German ophthalmologist, Dr. Pagenstecher, of Wiesbaden, has just died from the effects of a gun accident.

SIR DOMINIC CORRIGAN, the famous Dublin physician, died a few weeks ago, at the age of seventy-nine.

NOTES AND QUERIES.

DR. JOHN NEILL.

DR. JOHN NEILL, Emeritus Professor of Clinical Surgery in the University of Pennsylvania, died in this city on the 12th instant, after a long and painful illness. Dr. Neill was born in Philadelphia in 1819, of a family which has included several eminent medical men, of whom his father, Dr. Henry Neill, at one time President of the College of Physicians, is best known. He received his education at the University of Pennsylvania, graduating in 1837. Immediately thereafter he entered the medical department of the University, receiving the degree of M.D. three years later. In 1839 he was appointed House Surgeon at Wills Hospital, and remained there two years. Subsequently he resided as a substitute in the same capacity in the Pennsylvania Hospital. In 1845 he was appointed Demonstrator of Anatomy in the University. In 1847 he was elected Surgeon of Wills Hospital, and lectured during the summer at the Medical Institute of Philadelphia, on Anatomy. In 1849 he was appointed Physician to the Southeastern Cholera Hospital of this city, and made the minute injections upon which was based the report made to the College of Physicians and published in their Transactions. In 1852 he was elected Surgeon to the Pennsylvania Hospital, and in 1854 was elected Professor of Surgery in the medical department of the Pennsylvania College. In 1855 he was elected Surgeon to the Philadelphia Hospital at Blockley. During the late war Dr. Neill served in the army, at first in charge of the military hospitals in this city, and later, as Medical Director in the field. During this period he was brevetted Lieutenant-Colonel for meritorious services. In 1874 he was appointed Professor of Clinical Surgery in the University, but was obliged by ill health to resign a few years later. He was then made Emeritus Professor. As a lecturer, in his best days Dr. Neill was unusually successful, and was particularly distinguished for the originality and profuseness of practical illustration. He was the joint author, with the late Professor F. Gurney Smith, of "Neill and Smith's Compendium," a very popular students' hand-book.

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U.S. ARMY FROM FEBRUARY 8 TO FEBRUARY 21, 1880.

TAYLOR, M. K., CAPTAIN AND ASSISTANT-SURGEON.—To repair to Washington, D.C., and settle his accounts with the Treasury Department; on completion of this duty, to rejoin his proper station. S. O. 30, A. G. O., February 7, 1880.

MCLEDERY, H., CAPTAIN AND ASSISTANT-SURGEON.—Relieved from duty in Department of the East, to proceed, on or before March 1, 1880, to Fort Omaha, Neb., and report in person to Commanding General, Department of the Platte, for assignment to duty. S. O. 29, A. G. O., February 6, 1880.

HALL, J. D., CAPTAIN AND ASSISTANT-SURGEON.—Relieved from duty in Department of Texas, and to report to Commanding General, Department of Dakota, for assignment to duty. S. O. 35, A. G. O., February 13, 1880.

HOFF, J. V. R., CAPTAIN AND ASSISTANT-SURGEON.—To report in person to Commanding General, Department of the East, for assignment to duty at Fortress Monroe, Va. S. O. 29, c. s., A. G. O.

HALL, WILLIAM R., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—The leave of absence granted him December 5, 1879, from Headquarters Department of the Columbia, is extended three months. S. O. 32, A. G. O., February 10, 1880.

APPEL, D. M., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—So much of the order of December 29, 1879, as relieved him from duty in Department of the Missouri, is revoked. He will report in person to Commanding General, Department of the Missouri, for assignment to duty. S. O. 32, c. s., A. G. O.

CUNINGHAM, THOMAS A., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—The leave of absence granted him January 26, 1880, from Headquarters Department of Dakota, extended one month. S. O. 19, Division of the Missouri, February 9, 1880.

DRS. GEO. W. MCCREERY and **ED. D. SHUE**, of New York City, **RICHARD C. NEWTON**, of New York, and **JOHN J. COCHRAN**, of Massachusetts, having passed a successful examination before the Army Medical Board now in session in New York City, were, February 18, 1880, confirmed by the Senate as Assistant-Surgeons U.S. Army, with the rank of First-Lieutenant.